

UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Karl-Friedrich Laible et al.
Application Number: 10/791,550
Filing Date: March 1, 2004
Group Art Unit: 3637
Examiner: Hanh Van Tran
Title: FOAM-FILLED HOLLOW BODY AND METHOD FOR
PREVENTING FOAM FROM DISCHARGING THROUGH
AN OPENING OF A HOLLOW BODY TO BE FOAM-FILLED

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Commissioner for Patents
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APPEAL BRIEF

Pursuant to 37 CFR 1.192, Appellants hereby file an Appeal Brief in the above-identified application. This Appeal Brief is accompanied by the requisite fee set forth in 37 CFR 1.17(f).

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(1) REAL PARTY IN INTEREST

The real party in interest is BSH Bosch und Siemens Hausgeräte GmbH. The application and the invention disclosed in the application were assigned to BSH Bosch Und Siemens Hausgeräte by virtue of an Assignment executed on February 19, 2004, which is recorded at Reel 15890, Frame 899 of the U.S. Patent & Trademark Assignment Records, effective April 12, 2005.

(2) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) STATUS OF CLAIMS

Claims 1-29 are cancelled. Claims 30-39 are pending and stand rejected. The final rejections of claims 30-39 are being appealed.

An Amendment After Appeal is being filed herewith. In the Amendment After Appeal, Applicants seek to: (1) amend claim 30 to obviate a formality objection; and (2) cancel claims 35 and 36 to obviate an objection to the drawings. If the Amendment After Appeal is entered, claims 30-34 and 37-39 will remain pending in the application, and those claims will all stand rejected.

(4) STATUS OF AMENDMENTS

All Amendments, excluding the Amendment After Final Rejection filed February 18, 2010 have been entered. As noted above, an Amendment After Appeal is being filed herewith. The Amendment After Appeal has not yet been entered.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

A description of the subject matter recited in the pending claims that are argued separately is set forth below. In that description, the reference numbers of the elements of the embodiments shown in the drawings that correspond to the recited claim features are identified, along with an indication of the portions of the specification that provide support for these features.

A. Claim 30

Claim 30 is directed to a foam-filled hollow body which includes an inner wall and an outer wall. In the embodiment illustrated in Figure 1, the hollow body has an inner wall 3 and outer walls 1, 6. The outer walls are spaced from the inner walls. The outer wall has at least one opening therethrough. In outer wall and the opening therethrough are perhaps best seen in Figures 5a-5e, which illustrate an outer wall 25 having an opening 26 therethrough. These features of claim 30 are discussed in the specification between page 8, line 21 and page 9, line 4.

Again with reference to Figures 5a-5e, claim 30 also recites a reinforcing plate 27 positioned on an inner side of the outer wall 25 and coupled to the outer wall 25 by a clinch connection 18. The reinforcing plate 27 has a hole therethrough, the hole 28 in the reinforcing plate 27 being aligned with the opening 26 in the outer wall 25. These features of claim 30 are discussed in the specification at page 9, lines 9-15, and between page 10, line 22 and page 11, line 3.

Claim 30 further recites a destructible layer 15 positioned between the reinforcing plate 27 and the outer wall 25 so as to cover the hole 28 in the reinforcing plate 27 and the opening 26 in the outer wall 25. The destructible layer 15 is formed of a substantially incompressible material. These features of claim 30 are discussed in the specification at page 9, lines 15-21, and between page 10, line 22 and page 11, line 3.

Claim 30 further recites that the clinch connection 18 is made without substantial heating of the destructible layer 15 and without causing the destructible layer 15 to move such that the destructible layer 15 would uncover the opening 26 in the outer wall 25. These features of claim 30 are discussed in the specification between page 9, line 21 and page 10, line 4 and between page 11, line 10 and page 12, line 5.

Finally, claim 30 recites that foam insulation 34 is located between the inner wall and outer wall of the hollow body, wherein the destructible layer 15 prevents the foam insulation 34 from escaping from the opening 26 in the outer wall 25. These features of claim 30 are illustrated in Figure 5d of the application, and they are discussed in the specification at page 12, lines 11-17.

B. Claim 31

Claim 31 depends from claim 30 and further recites that the clinch connection 18 causes a portion 19 of the destructible layer 15 located at the clench connection to be broken off and driven into a recess in the reinforcing plate. As illustrated in Figures 3 and 5c-5e, a portion 19 of the destructible layer 15 located at the clinch connection is broken off and driven into a recess in the reinforcing plate 27 when the clinch connection is formed. These features of claim 31 are discussed in the specification between page 9, line 21 and page 10, line 4.

C. Claim 33

Claim 33 depends from claim 32 and further recites a hinge plate 8 that is attached to the outer wall by a fastener that passes through the opening in the outer wall and that is coupled to the hole in the reinforcing plate by screw threads, wherein the fastener pierces the destructible layer. These features of claim 33 are perhaps best illustrated in Figure 5e of the application. As shown therein, a fastener 35 passes through the opening 26 in the outer wall 25 and is coupled to the hole 28 in the reinforcing plate 27 by screw threads. The fastener 35 pierces the destructible layer 15. These features of claim 33 are discussed in the specification at page 10, lines 7-17 and at page 12, lines 19-24.

D. Claim 34

Claim 34 is also directed to a foam-filled hollow body which includes an inner wall 3 and an outer wall 1, 6. Claim 34 recites that the outer wall has an opening therethrough. These features of claim 34 discussed in the specification between page 8, line 21 and page 9, line 4.

Claim 34 further recites a reinforcing plate 27 positioned on an inner side of the outer wall 25 and coupled to the outer wall by a mechanical connection 18. The reinforcing plate 27 has a threaded hole 28 therethrough, the threaded hole in the reinforcing plate being aligned with the opening 26 in the outer wall 25. These features are discussed in the specification at page 9, lines 9-15 and between page 10, line 22 and page 11, line 3.

Claim 34 further recites a destructible layer 15 positioned between the reinforcing plate 27 and the outer wall 25 so as to cover the hole 28 in the reinforcing plate 27 and the opening 26 in the outer wall 25. The destructible layer is formed of a substantially inelastic material. These features of claim 34 are discussed in the specification at page 9, lines 15-21 and between page 10, line 22 and page 11, line 3.

Claim 34 also recites foam insulation 34 located between the inner wall and outer wall of the hollow body. Claim 34 recites that the destructible layer 15 prevents the foam insulation 34 from escaping from the opening 26 in the outer wall 25. These features of claim 34 are illustrated in Figure 5d and are discussed in the specification at page 12, lines 11-17.

E. Claim 37

Claim 37 depends from claim 34 and recites that the mechanical connection that couples the reinforcing plate 27 to the outer wall 25 is a clinch connection 18 in which a portion of the outer wall 25 is driven into a recess in the reinforcing plate 27. Claim 37 also recites that a portion of 19 of the destructible layer 15 at the clinch connection 18 is broken off and driven into the recess in the reinforcing plate 27. These features of claim 37 are illustrated in Figures 3 and 5c. These features are also discussed in the specification between page 9, line 21 and page 10, line 4.

F. Claim 39

Claim 39 depends from claim 38 and further recites a hinge plate 36 which is attached to the outer wall 25 by a fastener 35 that passes through the opening 26 in the outer wall 25 and that is coupled to the threaded hole 28 in the reinforcing plate 27 by screw threads. Claim 39 recites that the fastener 35 pierces the destructible layer 15. These features of claim 39 are illustrated in Figure 5e and they are discussed in the specification at page 10, lines 7-17 and at page 12, lines 19-24.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 30-33 are obvious, under 35 USC §103(a), over U.S. Patent No. 2,845,320 to Saunders et al. ("Saunders"), in view of U.S. Patent No. 6,036,293 to Anell ("Anell"), and further in view of US Patent No. 6,471,313 to Ueda et al. ("Ueda") and US Patent No. 4,102,721 to Carey, Jr. ("Carey").

B. Whether claims 34-36, 38 and 39 are obvious, under 35 USC §103(a), over Saunders, in view of Ueda, and further in view of Carey.

C. Whether claim 37 is obvious, under 35 USC 103(a), over Saunders, in view of Ueda, and further in view of Carey and Anell.

As noted above, an Amendment After Appeal is being filed herewith. Assuming the Amendment After Appeal is entered, the objection to claims 30-33, and the objection to the drawings set forth in the Final Rejection will have been traversed. For these reasons, Applicants have not listed these issues as matters to be reviewed on Appeal, nor are these issues addressed in the following arguments.

(7) ARGUMENT

A. Claims 30-33

Claims 30-33 were rejected under 35 USC §103(a) over US Patent No. 2,845,320 to Saunders et al. ("Saunders"), in view of US Patent No. 6,036,293 to Anell ("Anell"), and further in view of US Patent No. 6,471,313 to Ueda et al. ("Ueda") and US Patent No. 4,102,721 to Carey, Jr. ("Carey"). For the reasons provided below, it is respectfully submitted that the rejection should be withdrawn.

1. Claims 30 and 32

The Saunders reference discloses a refrigerator cabinet where a door of the refrigerator is attached to a body of the refrigerator by a hinge connection. Saunders discloses that a hinge bracket 36 can be attached to the front wall 13 of the refrigerator using fasteners 37, as shown in Figure 4. Saunders discloses that the fasteners 37 would pass through the hinge bracket 36, through the front wall 13 of the refrigerator, and into a reinforcing plate 21 located behind the front wall 13. Saunders fails to disclose or suggest that any type of film or material layer would be located between the front wall 13 of the refrigerator and the reinforcing plate 21.

Anell discloses a refrigerator cabinet where a plurality of reinforcing members 64, 65, 68, 96 are positioned behind the front wall 32, 33, 23 of a refrigerator body 5. Anell discloses that the front wall of the refrigerator body can be attached to the reinforcing members by crimping or clinching. However, like Saunders, Anell also fails to disclose or suggest that any type of film or material layer would be positioned between the front wall of the cabinet and the reinforcing elements.

Ueda discloses a cabinet which can be used as part of a refrigerator. As shown in Figures 20-24 of Ueda, a cover plate 17 is mounted on the corners of rectangular openings on the front face of the cabinet. Ueda teaches a structure which uses a reinforcing 14 plate that is attached to the front wall 11 and rear wall 12 via fasteners 15 that pass through holes 55 in the reinforcing plate 14 and holes 56 in the front wall 11 and rear wall 12. Ueda then covers the reinforcing plate 14 with the cover plate 17. Projections 22 on the rear face of the cover plate 17 are inserted into a large aperture 21 in the reinforcing plate 14 to mount the cover plate 17 in the corner of the opening.

Ueda teaches that one can place a piece of sponge rubber 51 between the walls 11, 12 of the cabinet and the reinforcing plate 14. The sponge rubber element is intended to seal any apertures in the structure. When the cover plate 17 is mounted on the structure, the protrusions 22 on the rear of the cover plate 17 cause deformation of the sponge rubber element 51. Because the sponge rubber element 51 is highly elastic, as shown in Figure 22, the sponge rubber element 51 is not pierced by the protrusions 22 on the cover plate 17. Instead, the elastic sponge rubber element 51 deforms inward to accommodate the protrusions 22.

Ueda teaches that it is necessary for the sponge rubber element 51 to be highly elastic so that the protrusions 22 on the cover plate 17 merely cause the sponge rubber element to elastically deform, rather than to break. This allows the Ueda structure to be fully assembled before foam insulation is injected into the structure. The fact that the highly elastic sponge rubber element does not break ensures that none of the foam insulation can leak out of the interior of the structure.

The Carey reference discloses a pressure-sensitive adhesive tape that can be applied to the inside of walls of a hollow body to cover apertures formed in the walls. Once the tape has been placed over the apertures, a foam insulation can be filled into an interior of the hollow body. The tape covering the apertures prevents any foam from escaping out of the apertures.

The Carey tape is formed from a fiber web that is unified with a pressure sensitive adhesive, the adhesive forming an adhesive skin layer on one side of the web to provide a tacky surface that will adhere to walls of a hollow body. The Carey tape is elastic. As proof of this fact, Carey indicates that when foam on the inside of the hollow body presses against the tape, the tape will deform.

Independent claim 30 recites a foam-filled hollow body which includes an inner wall, an outer wall, a reinforcing plate positioned on an inner side of the outer wall and a destructible layer positioned between the reinforcing plate and the outer wall. Claim 30 recites that the reinforcing plate is coupled to the outer wall by a clinch connection, and that the reinforcing plate has a hole therethrough, the hole in the reinforcing plate being aligned within the opening in the outer wall. Claim 30 further recites that the destructible layer is positioned so as to cover the hole in the reinforcing plate and the opening in the outer wall. Further, claim 30 recites that the destructible layer is formed of a substantially incompressible material. Finally, claim 30 recites that foam insulation is located between the inner wall and the outer wall, wherein the destructible layer prevents the foam insulation from escaping from the opening in the outer wall.

As noted above, neither Saunders nor Anell disclose or suggest putting any type of film or material layer between the outer wall of a refrigerator body and a reinforcing plate located behind the outer wall. The Office Action asserts that Ueda discloses this

feature, and that one of ordinary skill in the art would have been motivated to add the Ueda material layer to the Saunders and/or Anell refrigerators.

As explained above, Ueda teaches the use of a sponge rubber element located underneath a cosmetic cover plate. Ueda teaches that the sponge rubber element should be highly elastic such that when projections on the rear of the cover plate extend down into an aperture between the inner and outer walls of the Ueda structure, the projections cause the sponge rubber element to elastically deform, rather than to break. This allows the Ueda structure to be fully assembled before foam insulation is injected into the structure. The fact that the highly elastic sponge rubber element does not break ensures that none of the foam insulation can leak from the interior of the structure.

The Office Action appears to suggest that one of ordinary skill in the art, having decided to add a material layer to the Saunders or Anell refrigerators based on the teachings of Ueda, would then have been further motivated to replace Ueda's sponge rubber material layer with Carey's adhesive tape. It is respectfully submitted that that there is no proper motivation for substituting Carey's adhesive for Ueda's sponge rubber material layer. In fact, it is respectfully submitted that Ueda teaches against making such a substitution.

As noted above, Ueda teaches that the material layer positioned between the walls 11/12 of the hollow body and the reinforcing plate 14 should be highly elastic so that when the cover plate 18 is mounted on the structure, the projections 22 on the back of the mounting plate do not pierce through the material layer. Ueda specifically discloses the use of sponge rubber for this purpose, because sponge rubber provides sufficient elasticity. If a different and less elastic material were used, the projections 22 on the rear of the cover plate 14 would pierce the material, and this would allow foam to escape from within the hollow body.

The adhesive tape disclosed in Carey does not provide anywhere near the elasticity required to operate properly in the Ueda structure. If the Carey tape were used in place of sponge rubber in the Ueda structure, the projections 22 on the rear of the cover plate 14 would pierce the tape, and allow foam to escape from within the hollow body. Thus, making the substitution suggested in the Office Action runs against the teachings of Ueda, and using the Carey tape in place of a layer of sponge rubber

would destroy the functionality of the Ueda device. For these reasons alone, it is respectfully submitted that the combination of Carey with Ueda is improper.

Moreover, given the above facts, it is respectfully submitted that the only way to find a motivation to replace Ueda's layer of sponge rubber with the Carey tape comes from the impermissible use of hindsight, in view of Applicant's own invention. For this additional reason, it is respectfully submitted that the combination of references is improper.

Because the combination is references is improper, it is respectfully submitted that the rejection of claims 30 and 32 should be withdrawn.

2. Claim 31

Claim 31 depends from claim 30. It is respectfully submitted that claim 31 is allowable for all the reasons discussed above in connection with independent claim 30. Specifically, the combination of references used to reject the claim are improper. Withdrawal of the rejection of claim 31 on these grounds alone is respectfully requested.

Claim 31 further recites that the clinch connection causes a portion of the destructible layer located at the clinch connection to be broken off and driven into a recess in the reinforcing plate. None of the references of record disclose or suggest a clinch connection where a portion of destructible layer located at the clinch connection is broken off and driven in to a recess in a reinforcing plate. It is respectfully submitted that claim 31 is also allowable for these additional reasons.

In view of all of the foregoing, it is respectfully submitted that the rejection of claim 31 should also be withdrawn.

B. Claims 34-36, 38 and 39

Claims 34-36, 38 and 39 are rejected under 35 USC §103(a) over Saunders, in view of Ueda, and further in view of Carey. For the reasons provided below, it is respectfully submitted that the rejection should be withdrawn.

1. Claims 34-36 and 38

For all the reasons discussed above, it is respectfully submitted that the combination of Ueda and Carey with the Saunders reference is improper. Accordingly, it is respectfully submitted that independent claim 34 is allowable for reasons similar to those discussed above in connection with independent claim 30. Claims 35, 36 and 38 depend from claim 34 and are allowable for the same reasons, and for the additional features which they recite. Accordingly, it is respectfully submitted that the rejection of claims 34-36 and 38 should also be withdrawn.

2. Claim 39

Claim 39 ultimately depends from claim 34. It is respectfully submitted that claim 39 is allowable because the Ueda and Carey references cannot properly be combined with the Saunders reference. Withdrawal of the rejection of claim 39 on these grounds alone is respectfully requested.

Claim 39 further recites a hinge plate that is attached to the outer wall by a fastener that passes through the opening in the outer wall and that is coupled to the threaded hole in the reinforcing plate by screw threads. Claim 39 recites that the fastener pierces the destructible layer. The references of record also fail to disclose or suggest an embodiment where a fastener pierces a destructible layer in order to attach a hinge plate to an outer wall. In fact, the Ueda reference teaches against a fastener piercing a destructible layer. It is respectfully submitted that claim 39 is also allowable for these additional reasons.

C. Claim 37

Claim 37 was rejected under 35 USC §103(a) over Saunders, in view of Ueda, and further in view of Carey and Anell. For the reasons provided below, it is respectfully submitted that the rejection should be withdrawn.

Claim 37 depends from claim 34. It is respectfully submitted that claim 37 is also allowable because the Carey and Ueda references cannot be properly combined with the Saunders and Anell references. Withdrawal of the rejection of claim 37 on these grounds alone is respectfully requested.

Claim 37 further recites that the mechanical connection that couples the reinforcing plate to the outer wall is a clinch connection in which a portion of the outer wall is driven into a recess and the reinforcing plate. Claim 37 recites that a portion of the destructible layer at the clinch connection is broken off and driven into a recess in the reinforcing plate. None of the references of record disclose or suggest that a portion of a destructible layer at a clinch connection would be broken off and driven into a recess in a reinforcing plate. It is respectfully submitted that claim 37 is also allowable for these additional reasons.

(8) CONCLUSION

In view of the foregoing discussion, Appellants respectfully request reversal of the Examiner's rejection.

Respectfully submitted,

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CLAIMS APPENDIX

1-29. (Canceled).

30. (Rejected) A foam-filled hollow body, comprising:
an inner wall;
an outer wall spaced from the inner wall, the outer wall having an opening therethrough;
a reinforcing plate positioned on an inner side of the outer wall and coupled to the outer wall by a clinch connection, the reinforcing plate having a hole therethrough, the hole in the reinforcing plate being aligned with the opening in the outer wall;
a destructible layer positioned between the reinforcing plate and the outer wall so as to cover the hole in the reinforcing plate and the opening in the outer wall so as to cover the hole in the reinforcing plate and the opening in the outer wall, the destructible layer being formed of a substantially incompressible material, wherein the clinch connection is made without substantial heating of the destructible layer and without causing the destructible layer to move such that the destructible layer would uncover the opening in the outer wall; and
foam insulation located between the inner wall and the outer wall, wherein the destructible layer prevents the foam insulation from escaping from the opening in the outer wall.

31. (Rejected) The foam-filled hollow body of claim 30, wherein the clinch connection causes a portion of the destructible layer located at the clinch connection to be broken off and driven into a recess in the reinforcing plate.

32. (Rejected) The foam-filled hollow body of claim 30, wherein the foam-filled hollow body is the housing of a refrigerating appliance.

33. (Rejected) The foam-filled hollow body of claim 32, further comprising a hinge plate that is attached to the outer wall by a fastener that passes through the opening in the outer wall and that is coupled to the hole in the reinforcing plate by screw threads, wherein the fastener pierces the destructible layer.

34. (Rejected) A foam-filled hollow body, comprising:
an inner wall;
an outer wall spaced from the inner wall, the outer wall having an opening therethrough;
a reinforcing plate positioned on an inner side of the outer wall and coupled to the outer wall by a mechanical connection, the reinforcing plate having a threaded hole therethrough, the threaded hole in the reinforcing plate being aligned with the opening in the outer wall;
a destructible layer positioned between the reinforcing plate and the outer wall so as to cover the hole in the reinforcing plate and the opening in the outer wall, the destructible layer being formed of a substantially inelastic material; and
foam insulation located between the inner wall and the outer wall, wherein the destructible layer prevents the foam insulation from escaping from the opening in the outer wall.

35. (Rejected) The foam-filled hollow body of claim 34, wherein the mechanical connection that couples the reinforcing plate to the outer wall comprises a fastener that passes through the outer wall, the destructible layer and the reinforcing plate.

36. (Rejected) The foam-filled hollow body of claim 35 wherein the fastener is a rivet.

37. (Rejected) The foam-filled hollow body of claim 34, wherein the mechanical connection that couples the reinforcing plate to the outer wall is a clinch connection in which a portion of the outer wall is driven into a recess in the reinforcing

plate, and wherein a portion of the destructible layer at the clinch connection is broken off and driven into the recess in the reinforcing plate.

38. (Rejected) The foam-filled hollow body of claim 34, wherein the foam-filled hollow body is the housing of a refrigerating appliance.

39. (Rejected) The foam-filled hollow body of claim 38, further comprising a hinge plate that is attached to the outer wall by a fastener that passes through the opening in the outer wall and that is coupled to the threaded hole in the reinforcing plate by screw threads, wherein the fastener pierces the destructible layer.

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EVIDENCE APPENDIX

NONE

ATTORNEY DOCKET NO.: 2001P14032WOUS

RELATED PROCEEDINGS APPENDIX

NONE